

1A-BE WEDNESDAY 1-21-09

① Is $6x + 2y = 12x + 8$

a linear equation? How do you know.

② Solve $6x + 2y = 12x + 8$ for y

③ Graph: $y = 3x + 4$, how many "X values" do you need?

④ Using any two points from the T-Table in #③, find the slope of $y = 3x + 4$.

* Have homework out, Pg 831 # 1-10
(Lesson 5-1)

1.
WHAT DOES THE WORD "intercept"
mean?

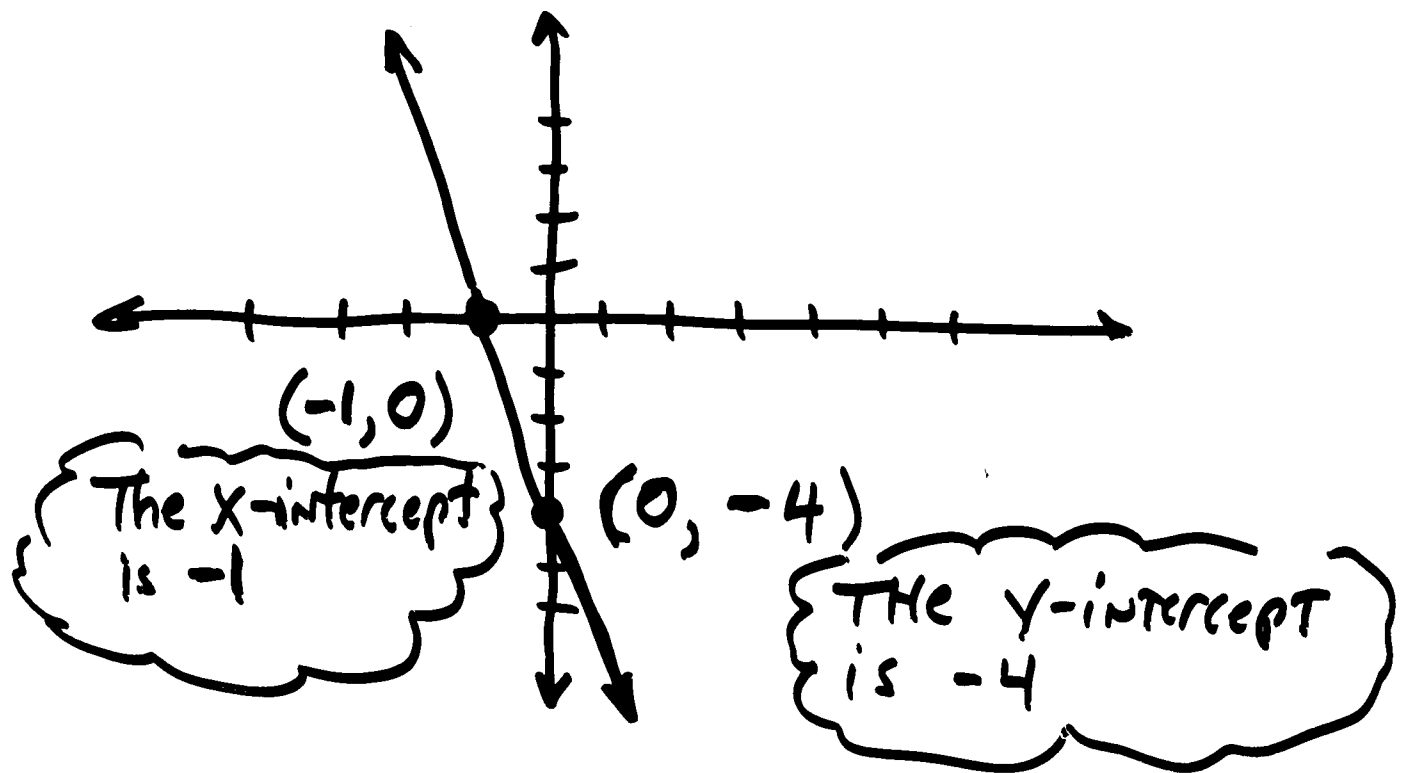
In Algebra, it means "to cross"

On the X-Y COORDINATE PLANE
ANY diagonal line HAS two
intercepts:

X-intercept where the line crosses
the X-AXIS

Y-intercept where the line crosses
the Y-AXIS.
VARIABLE used is "b"

Example of X and Y-Intercepts

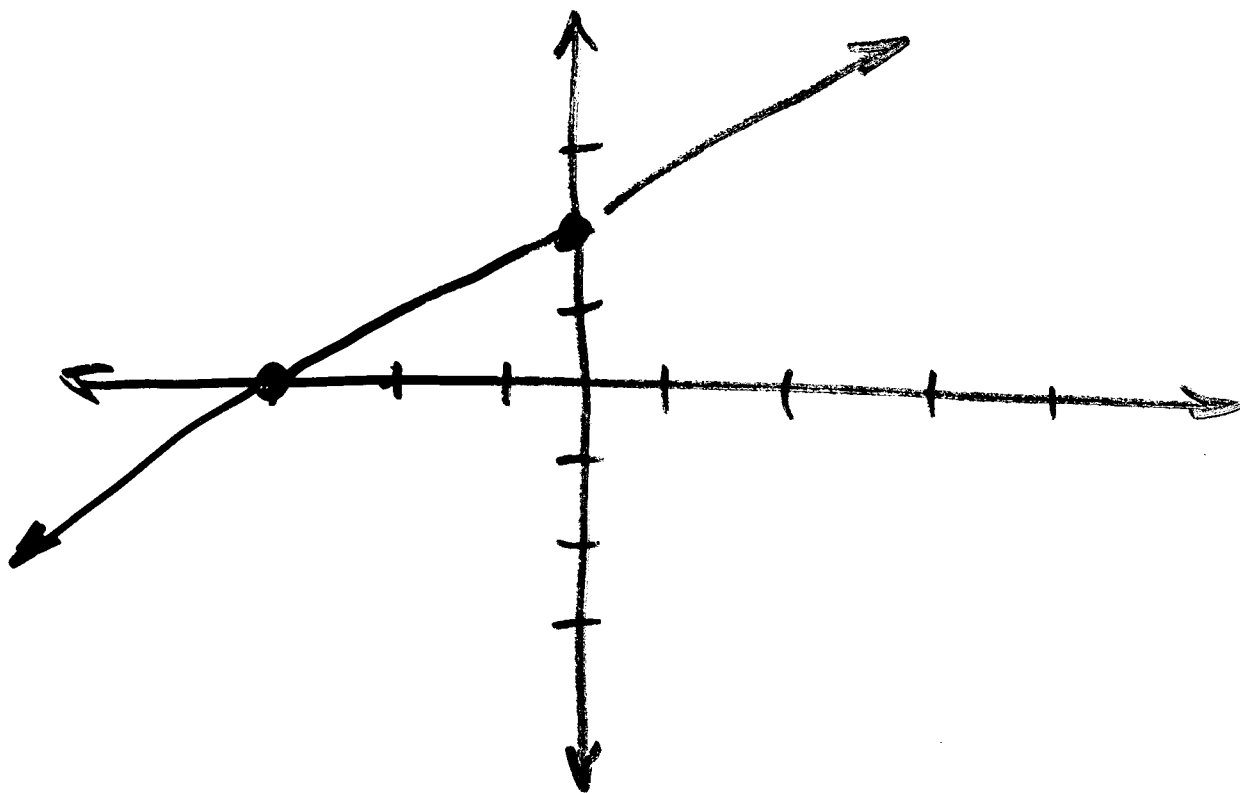


⇒ All X-intercepts Have A Y-coordinate VALUE of 0

⇒ All Y-intercepts Have AN X-coordinate VALUE of 0

ON THE graph below:

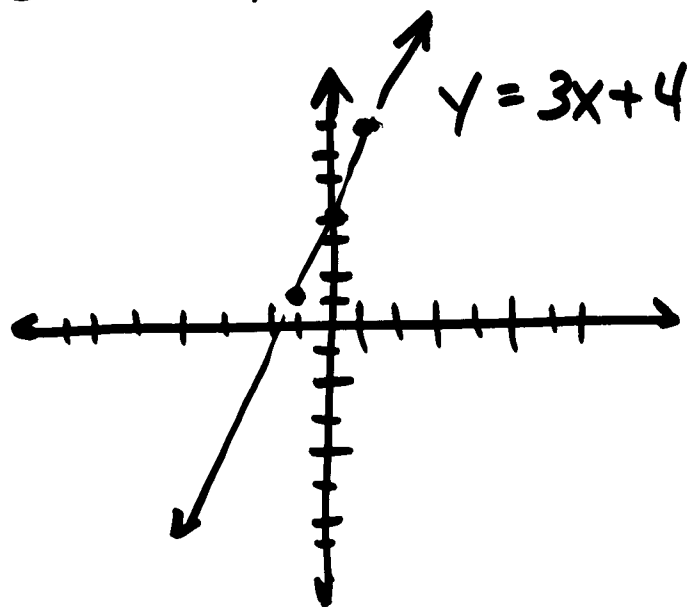
- ① WHAT is the x -intercept?
- ② WHAT ARE THE full COORDINATES OF THE point WHERE THE LINE crosses the x -axis?
- ③ WHAT is the y -intercept = b ?
- ④ WHAT ARE THE full COORDINATES OF THE point WHERE THE LINE crosses the y -axis?



LETS GO BACK AND LOOK AT THE BELL EXERCISE

Graphing $y = 3x + 4$

x	$y = 3x + 4$
-1	$3(-1) + 4 = 1$
0	$3(0) + 4 = 4$
1	$3(1) + 4 = 7$



Slope $m \Rightarrow (0, 4), (1, 7)$

$$\frac{7-4}{1-0} = \frac{3}{1} = \boxed{3 = m}$$

Look at $y = 3x + 4$

Do you see a connection between $m = 3$ and $y = 3x + 4$?

What is b , the y -intercept?

$b = 4$ Do you see the connection with $y = 3x + 4$?

It turns out THAT for ANY
 linear equation "solved for y ";
 the number in front of x
 (the coefficient of x)
 will always be m , the slope
 And the number "by itself" will
 always be b , the y -intercept.

$y = 3x + 4$ is in the form

$$y = mx + b$$

$$m = 3 \text{ or } \frac{\text{rise}}{\text{run}} = \frac{3}{1} \text{ and } b = 4$$

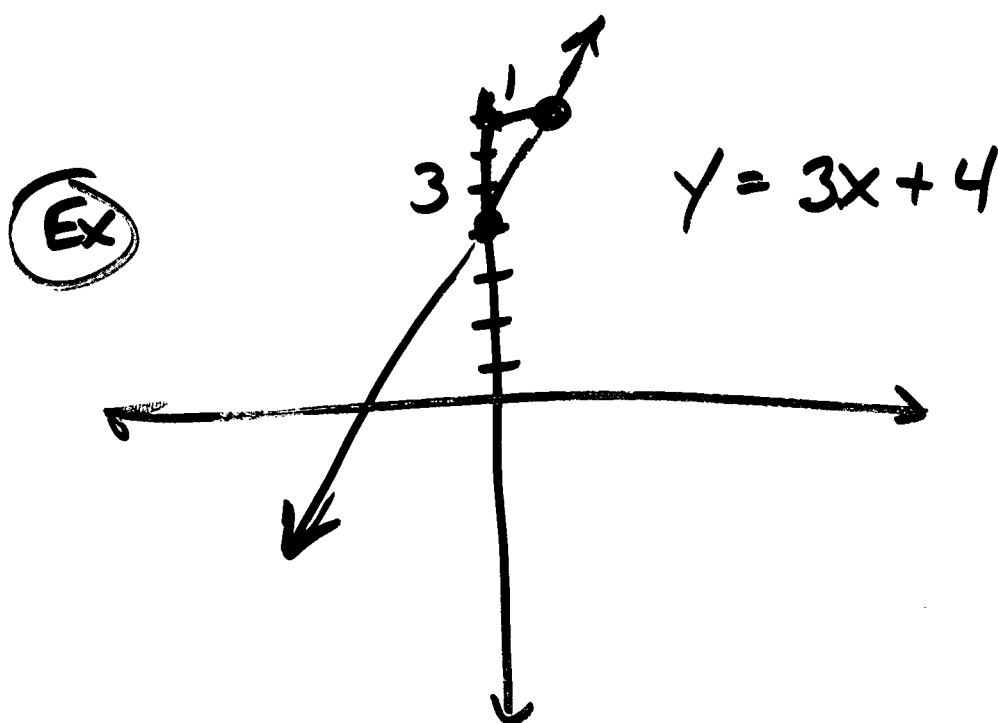
or it crosses the y axis at $(0, 4)$

$y = mx + b$ is called the

↓ ↓
 Slope - Intercept Form of
 A Linear Equation

Since ONLY ONE line CAN PASS through $(0, 4)$ WITH A POSITIVE slope of $\frac{3}{1}$ you CAN use the $y = mx + b$ form to graph a line directly, NO T-Table Needed!

*(M) begin at b , the y -intercept
move by the slope 



Identify the slope and y-intercept then graph the line:

① $y = 2x + 1$

② $y = \frac{3}{4}x + 2$

③ $y = -\frac{1}{2}x - 1$

Chapter 5-3 "Slope-Intercept Form"

Homework: • Read Ch. 5-3

• Page 275 # 8-10
(if not solved for y ,
do this first!)